

WHAT IS CLAIMED IS:

1. For use with a fast pattern processor having an internal
2 function bus, an external device transmission system, comprising:

3 a context memory subsystem configured to maintain a plurality
4 of argument signature registers, each of said plurality of argument
5 signature registers being associated with a corresponding context
6 and containing a corresponding argument;

7 a pattern processing engine configured to dynamically modify
8 an argument and generate a transmit command as a function of a
9 context associated with said modified argument; and

10 an output interface subsystem configured to receive said
11 transmit command, and transmit said modified argument based upon
12 said transmit command to an external device.

2. The external device transmission system as recited in
Claim 1 wherein said modified argument contains data selected from
3 the group consisting of:

4 an external device command,

5 a routing parameter, and

6 a protocol data unit classification.

3. The external device transmission system as recited in

2 Claim 1 wherein said corresponding argument is 64 bits wide.

4. The external device transmission system as recited in
2 Claim 1 wherein said output interface subsystem is further
3 configured to transmit portions of a protocol data unit and said
4 modified argument to said external device.

5. The external device transmission system as recited in
2 Claim 1 wherein said external device is a routing switch processor.

6. The external device transmission system as recited in
Claim 1 wherein said pattern processing engine is further
configured to dynamically modify said modified argument based upon
a content of a protocol data unit.

7. The external device transmission system as recited in
Claim 1 wherein said pattern processing engine is configured to
employ a sequence of operating instructions defined by a functional
4 programing language.

8. For use with a fast pattern processor having an internal
2 function bus, a method for transmitting commands to an external
3 device, comprising:

4 maintaining a plurality of argument signature registers, each
5 of said plurality of argument signature registers being associated
6 with a corresponding context and containing a corresponding
7 argument;

8 dynamically modifying an argument;

9 generating a transmit command as a function of a context
10 associated with said modified argument; and

11 transmitting said modified argument based upon said transmit
12 command to an external device.

9. The method as recited in Claim 8 wherein said modified
argument contains data selected from the group consisting of:

5 an external device command,

a routing parameter, and

a protocol data unit classification.

10. The method as recited in Claim 8 wherein said

2 corresponding arguments are 64 bits wide.

11. The method as recited in Claim 8 wherein said
2 transmitting further comprises transmitting portions of a protocol
3 data unit and said modified argument to said external device.

12. The method as recited in Claim 8 wherein said external
2 device is a routing switch processor.

13. The method as recited in Claim 8 wherein said dynamically
2 modifying further comprises dynamically modifying said modified
3 argument based upon a content of a protocol data unit.

14. The method as recited in Claim 8 wherein said dynamically
modifying employs a sequence of operating instructions defined by
a functional programing language.

15. A fast pattern processor, comprising:

2 an internal function bus;

3 an external device transmission system, including:

4 a context memory subsystem that maintains a plurality of
5 argument signature registers, each of said plurality of
6 argument signature registers being associated with a
7 corresponding context and containing a corresponding argument,

8 a pattern processing engine that dynamically modifies an
9 argument and generates a transmit command as a function of a
10 context associated with said modified argument, and

11 an output interface subsystem that receives said transmit
12 command, and transmits said modified argument based upon said
13 transmit command to an external device; and
14 a data buffer controller that stores configuration information
15 into a portion of said context memory subsystem associated with
16 said corresponding context.

17. The fast pattern processor as recited in Claim 15 wherein

18 said modified argument contains data selected from the group
19 consisting of:

20 an external device command,

21 a routing parameter, and

22 a protocol data unit classification.

17. The fast pattern processor as recited in Claim 15 wherein
2 said corresponding argument is 64 bits wide.

18. The fast pattern processor as recited in Claim 15 wherein
2 said output interface subsystem further transmits portions of a
3 protocol data unit and said modified argument to said external
4 device.

19. The fast pattern processor as recited in Claim 15 wherein
2 said external device is a routing switch processor.

20. The fast pattern processor as recited in Claim 15 wherein
said pattern processing engine further dynamically modifies said
modified argument based upon a content of a protocol data unit.

21. The fast pattern processor as recited in Claim 15 wherein
said pattern processing engine employs a sequence of operating
3 instructions defined by a functional programing language.